REMARKS

Claims 1-18 are still pending in this application. Reconsideration of the application is earnestly requested.

The Office action has rejected claims 1-13 and 15-18 under §102(b) as being anticipated by *Pelrine et al.* (*Pelrine*). Although the Examiner's arguments have been carefully considered, Applicant respectfully traverses this rejection as explained below.

A sensing system for sensing a load includes a processor. The processor is operatively coupled to a plurality of sensors and is arranged to receive sensory data from the sensors and transform the sensory data into information data relating to a load applied to the surface. Importantly, the processor is arranged to process the sensor data received by all the sensors collectively. Collector processing is further described in the paragraph spanning pages 2 to 3 of the present application:

> It will be understood that by collective processing of the sensory data is meant that the sensory data from each sensor is combined with the sensory data from each of the other sensors and be information data is derived from the combined sensory dataset. In other words, the information data is not derived from a simple sum or product of the individually processed sensory data from each sensor, but collectively in a nonlinear fashion to manufacture an output. As each sensor output is affected by the applied load anywhere over the surface, the positioning of the sensors need only be determined to optimize the discrimination between variations in the applied load. Thus, the importance of the deformation in the sense of the surface continuum is that there is coupling between sensor outputs and that the effects of loading anywhere on the surface are transmitted to all individual sensors by the response of the surface. This is in contrast with array sensors where sensing elements respond only to loads applied at the same points as the sensing elements.

Claim 1 specifically requires:

> a processor operatively coupled to said sensors and arranged to receive said sensory data from the sensors and to transform said sensory data into information data relating to a load applied to the surface, and

> an output for outputting the information data, wherein the processor is arranged to process the sensory data received by all the sensors collectively.

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With regard to *Pelrine*, the sensors appear to be independent from one another, rather than coupled by the deformation response of the surface. For example, see paragraph 168 of *Pelrine* which states that an advantage of electroactive active polymer sensor arrays is that each electroactive polymer portion may provide independent measurement of the changing parameter (*e.g.*, a contact for each key on the keyboard may be separately detected). Furthermore, the examiner cites paragraph 84 of *Pelrine* as disclosing the processor feature of claim 1 of the present application. Paragraph 84, however, merely relates to logic device (*e.g.*, a single-chip computer or microprocessor in electrical communication with the sensing electronics). There is no indication that the logic device collectively processes the sensor data as required by claim 1.

Therefore, it appears that *Pelrine* is directed to an entirely different system to that claimed in claim 1. The important aspect of the present invention (*i.e.*, a deformable surface with coupled sensors whose sensor data is processed collectively to derive an output) is completely absent from *Pelrine*. This feature ensures that the claimed system is particularly efficient, where the efficiency is achieved by carefully optimizing the sensor locations so as to achieve the desired information data output from the processor.

For these reasons, it is respectfully requested that rejection of claim 1 be withdrawn. Claim 15 is a method of characterizing a load applied to a load bearing surface and specifically requires:

> generating sensory data about the surface from a plurality of sensing elements operably coupled with the surface,
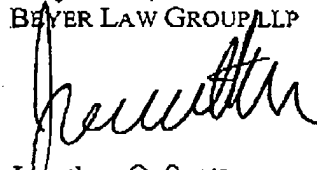
> combining the sensory data into a single vector of inputs for a transformation.

Therefore, it is respectfully submitted that claim 15 is patentable as well. Since the dependent claims 2-13 and 16-18 depend from the independent claims, it is respectfully submitted that they are each patentable over the art of record for at least the same reasons as set forth above with respect to the independent claims. Further, each of the dependent claims require additional features that when considered in light of the claimed combination further distinguish the claimed invention from the art of record.

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Applicant acknowledges that claim 14 would be allowable if rewritten in independent form including all the limitations of claim 1, and reserves the right to introduce such a rewritten claim at a later time.

Reconsideration of this application and issuance of a Notice of Allowance at an early date are respectfully requested. If the Examiner believes a telephone conference would in any way expedite prosecution, please do not hesitate to telephone the undersigned at (612) 252-3330.

Respectfully submitted,
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